

**SAFEX**  
**INTERNATIONAL**  
 (Since 1954)

**INCIDENT NOTICE**

(Kindly direct all correspondence to the Secretary General)

**INCIDENT TITLE:** Probable Friction Event, NG, in the United Kingdom

<b>DATE POSTED</b> 30 May 2018	<b>REFERENCE</b> IN18-09	<b>SOURCE</b> ROXEL
<b>INCIDENT OUTLINE</b>		
<b>When did it happen?</b>	May 30 ,2018 at approximately 10:30 am	
<b>Who experienced it?</b>	Roxel (UK Rocket Motors) Ltd	
<b>Where did it happen?</b>	ROXEL, Kidderminster, UK	
<b>What material was involved?</b>	Not confirmed, possibly NG ,probably milligrams	
<b>What happened?</b>	<p>During the routine calibration of vacuum stability jigs an ignition occurred whilst the calibration technician was tightening a brass closing cap, on a port that is rarely used, on the jig. Previously the port has been used to draw of samples of evolved gas for analysis.</p> <p>At the start of calibration each jig is unconnected to the vacuum pump and the vacuum gauge; the technicians set the recorder to atmospheric pressure as shown by the calibration gauge and checks the brass cap, screw threaded, is securely in place.</p> <p>The technicians had completed 21 jigs out of 30 and were just starting on jig 22.</p> <p>As the technician was tightening this cap, normally less than 1/8th of a turn, if that, an ignition occurred.</p> <p>The vacuum stability jigs used were designed, manufactured and have been in use since the early 1970's.</p> <p>.</p>	
<b>Why did it happen – theory?</b>	<p>The event is assessed as most probably an energetic composition with the sensitivity of a primary explosive (due to the minor amount of friction or nipping likely to have been induced) which ignited although the exact cause is not known. One of the underlying causes is assessed as poor design of the jig - it is a large mass of stainless steel with a number of internal screw threads where material can condense.</p>	
<b>What was the impact?</b>	<p>Minor scorch injury to the thumb, fore finger and index finger of the left hand of the operative. No other injuries.</p> <p>The cap had separated into two parts, by way of a circumferential fracture generally following the middle of the thread undercut. The top part was noticeably domed compared to its original flat shape, whilst the threaded lower part showed some barrelling and significant yielding adjacent to the fracture surface. All fracture surfaces were visibly</p>	

	<p>ductile in nature.</p> <p>On close examination, the origin of failure of the brass cap was identified by the greater degree of yielding, and the coarse fracture surface. Areas of ductile tearing, and of final separation were also identified. No evidence of pre-existing defects or damage, or of any environmental degradation was found. The initial failure propagated by ductile tearing, allowing the top part to peel away from the threaded section before finally separating at the 'hinge'</p> <p>No other damage or injury was sustained.</p>
--	---

**Contact:**

**Name:** Stuart Hooper  
**Position:** Systems Safety Manager, ROXEL  
**email:** [stuart.hooper@roxelgroup.uk.com](mailto:stuart.hooper@roxelgroup.uk.com)

**Investigation Report to Follow: No**

**DISTRIBUTED BY:**

**Piet Halliday**  
**Secretary General, SAFEX International**  
**Website:** [www.safex-international.org](http://www.safex-international.org)  
**Tel:** +27 82 5565351; **Tel:** +27 11 7041743  
**e-mail:** [secretariat@safex-international.org](mailto:secretariat@safex-international.org)